USSR UDC 681.325.65

MKRTCHYAN, S. O., PETROSYAN, K. A., et al.

"A Threshold Element"

USSR Author's Certificate No. 271570, Filed 28/04/69, Published 15/09/70. (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B181P).

Translation: Threshold elements are known which contain input current switches, each of which consists of an information and a reference transistor and an output switch. The threshold element suggested differs as follows: The collectors of the information transistors of the input current switches corresponding to the exciting inputs and the collectors of the reference transistors of the input current switches corresponding to the inhibiting inputs are interconnected and connected to the base of the first output current switch transistor. The collectors of the reference transistors of the input current switches corresponding to the exciting inputs and the collectors of the information transistors of the input current switches corresponding to the inhibiting inputs are interconnected and connected to the base of the second output switch transistor. This allows the functional capabilities of the element to be expanded. 1 fig.

Automatic Control: Systems

USSR UDC: 681.3.06:519.82

MKRTCHYAN, V. M., Yerevan Scientific Research Institute of Mathematical Machines

"On Evaluating the Quality of an Automatic Control System"

Yerevan, Izvestiya Akademii Nauk Armyanskoy SSR, Vol 26, No 5, 1973, pp 3-8

Abstract: A new method is proposed for evaluating the quality of linear discrete systems on the basis of the maximum value of the derivative of the argument of a characteristic polynomial, which accounts for multiple roots of this polynomial. The paper demonstrates the productivity of the method when a computer is used and illustrates the procedure by characteristic examples.

1/1

USSR

UDC 669.24'15'292:538.22

GRUZIN, P. L., RODIONOV, YU. L., and MKRTCHYAN, V. S., Institute of Metal Science and Physics of Metals of the Central Scientific Research Institute of Ferrous Metallurgy

"Redistribution of Vanadium Atoms in Iron-Nickel Permalloys"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 4, 1972, pp 878-879

Abstract: The Ni-15Fe-13V alloy was enriched with Fe-57 isotope (up to 10%) in order to make the nuclear gamma resonance (NGR) method more sensitive. The Mossbauer spectrometer was used in the experiments. All samples were 20-40 μ m thick, the annealing of which was carried out at 450-500°C. Changes in V atoms concentration was judged from alternations of the supefine magnetic field (H_{sup}). Increase of H_{sup} for $Ni_3(Fe, V)$ alloy after annealing was $\sim$ 40 koersted compared with hardened samples. This increase in H_{sup} corresponded to a decrease in the number of V atoms around Fe atoms which in this case amounted to $\sim$ 20%. The value of H_{sup} for deformed $Ni_3(Fe, V)$ samples was lower by approximately 20 koersted in comparison with hardened. This means that V atoms move away from Fe atoms during annealing, the redistribution of

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USSR

GRUZIN, P. L., et al., Fizika Metallov i Metallovedeniye, Vol 34, No 4, 1972, pp 878-879

V atoms during low-temperature annealing (450-500°C) was lower for deformed samples compared with the hardened samples.

2/2

UDC: 539.2+621.039.8

USSR

GRUZIN, P. L., RODIONOV, Yu. L., MKRTCHYAN, V. S., LI, Yu. A.

"Study of the Effect of Cobalt on the Redistribution of Alloy Element Atoms in Iron-based Alloys by the NGR Method"

Moscow, Doklady Akademii Nauk SSSR, Vol 204, No 2, 1972, pp 328-331.

Abstract: Cobalt as an alloying element has a significant influence on the physical and mechanical properties of alloys. However, there is no unified opinion at present concerning the relative role of cobalt in changing the properties of alloys. This work studied the influence of cobalt on the redistribution of atoms of alloying elements in submicrovolumes of iron-based alloys by the method of nuclear gamma resonance (NGR). Alloys studied included Fe-12Co; Fe-16Ni-5,6Co; Fe-16Ni-10Co; Fe-16Ni-15Co; Fe-16Ni-15Co-5Mo; Fe-16Ni-15Co-10Mo; Fe-18Ni-10Co-10W.

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USSR

GURZIN, P. L., RODIONOV, Yu. L., MKRTCHYAN, V. V., LI, Yu. A., Moscow, Doklady Akademii Nauk SSSR, Vol 204, No 2, 1972, pp 328-331.

The influence of hardening and subsequent tempering at 400-500°C on the resonance spectra was studied for the alloy Fe-16Ni. The study showed that in the early stages of tempering of iron-cobalt at 400-500°C, the atoms of cobalt are redistributed, resulting in an increase in the number of cobalt atoms in the immediate neighborhood of the iron; the molybdenum and tungsten atoms move away from the iron atoms in the solid solution. In later stages of tempering, the phases Fe_2Mo and Fe_2W are formed. Establishment of close order of iron and cobalt atoms retards the processes leading to the separation of phases such as Fe_2Mo.

2/2

Automata

USSR UDC: 8.74

KAGAN, B. M., [redacted], and BUZYUK, M. A.

"A Realization of the D-Algorithm in the System of Automating the Design of Diagnostic Tests (SAPDT) for Combination Automatons"

Moscow, Tr. Mosk. in-ta inzh. zh.-d. transp. (Transactions of the Moscow Institute of Railroad Engineering) 1971, No 395, pp 195-209 (from RZh--Matematika, No 7, 1972, Abstract No 7V558)

Translation: Problems in the automation of diagnostic test construction for combination automatons are considered. A D-algorithm is used for finding sets of input variables controlling the specified fault. An example of using the algorithm for computing the controlling test for an automaton with memory is given.

UDC 8.74

USSR

KAGAN, B. M., MKRTUMYAN, I. B., BUZYUK, M. A.

"An Execution of the D-Algorithm in the System for Automation of the Planning and Design of Diagnostic Tests (SAPDT) for Combination Automata"

Tr. Mosk. in-ta inzh. zh.-d. transp. (Works of Moscow Institute of Railroad Transportation Engineers), 1971, vyp. 395, pp 195-209 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V558)

Translation: A study was made of the problems of automating the construction of diagnostic tests for combination automata. In finding the sets of input variables controlling the given failure, the D-algorithm is used. An example is presented of the application of the algorithm to calculate the controlling test for an automaton with a memory.

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1/2 028 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--FUNCTIONAL CHARACTERISTICS OF UNITS IN THE PRIMARY VISUAL CORTEX OF CATS -U-

AUTHOR--MKRTYCHEVA, L.M., SAMSONOVA, V.G.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA, 1970, VOL 2, NR 2, PP 173-179

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CEREBRAL CORTEX, VISION, CAT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0238 STEP NO--UR/0660/70/002/002/0173/0179

CIRC ACCESSION NO--AP0102291

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 028

CIRC ACCESSION NO--AP0102291

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. QUANTITATIVE CHARACTERISTICS OF THE OUTPUT SIGNALS WERE OBTAINED FOR 80 UNITS IN THE PRIMARY VISUAL CORTEX OF RELAXED CATS BY MEANS OF EXTRACELLULAR RECORDS OF THEIR SPIKE ACTIVITY. THE AMOUNTS OF PHOTIC ENERGY ELICITING THRESHOLD RESPONSES TO FLASHES (FROM 100 MU SEC TO I SEC) IN VARIOUS NEURONES DIFFER BY 7 LOG. UNITS. THE UNITS DISTRIBUTION CURVE FOR THRESHOLD VALUES POSSESSES ONE MAXIMUM WITHIN THE ENERGY RANGE FROM I TO 10 LM TIMES SEC. THE UNITS RECORDED ARE ABLE TO SUMMATE THE EXCITATION ON THE AVERAGE UP TO 34 MSEC. BY THEIR RESPONSE LATENCIES THE CELLS FALL INTO THREE GROUPS. THE FIRST ONE REACTS AFTER 20-40 MSEC, THE SECOND, AFTER 100-120 MSEC, THE THIRD, AFTER 160-180 MSEC FROM THE BEGINNING OF THE STIMULATION. THE PHOTIC STIMULATION CONSIDERABLY CHANGES THE PROPORTION OF UNITS DISCHARGING WITH HIGH AND WITH LOW FREQUENCY. NO CORRELATION HAS BEEN FOUND BETWEEN THE PHOTIC SENSITIVITY OF THE UNITS, THE LATENCIES OF THEIR RESPONSES AND THE CRITICAL TIME OF SUMMATION. THE TESTIFIES TO THE PRESENCE OF A GREAT NUMBER OF VISUAL CORTICAL UNITS WHICH ARE SIMILAR ONLY BY ONE OF THE FUNCTIONAL CHARACTERISTICS OF THEIR OUTPUT SIGNAL.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--CHEMISTRY OF ETHERS WITH UNSATURATED RADICALS. XVI. REACTION OF A GRIGNARD REAGENT WITH 2,METHOXY,2,METHYL, 3,ALKYNES -U-

AUTHOR-(04)-MKRYAN, G.M., GASPARYAN, S.M., MELKONYAN, N.K., NAZARYAN, A.A.

MKRYAN

M

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 912-15

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ETHER, FREE RADICAL, GRIGNARD REAGENT, METHOXY COMPOUND, ALKYNE, GAS CHROMATOGRAPH, DIMERIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1335 STEP NO--UR/0366/70/006/005/0912/0915

CIRC ACCESSION NO--AP0135009

UNCLASSIFIED PROCESSING DATE--20NOV70

2/2 014

CIRC ACCESSION NO--AP0135009

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTIONS OF RC TRIPLE BOND CCME SUB2 CME (R IS ME, ET, PR, BU) WITH R PRIME1 MGBR (R PRIME1 IS ME OR ET) PROCEED BY A FREE RADICAL MECHANISM (G. M. MKRYAN, ET AL., 1966, 1967, 1968). THE RADICALS RC TRIPLE BOND CC.ME SUB2 (I) AND R PRIME1. INTERACT GIVING R PRIME1 R PRIME1, RC TRIPLE BOND CCME SUB2 R PRIME1, AND RC TRIPLE BOND CCME SUB2 CME SUB2 C TRIPLE BOND CR. I REARRANGES TO RC.:C: CME SUB2 WHICH THEN DIMERIZES GIVING MC SUB2 C:C:CRCR:C:CME SUB2 (II) AND RC TRIPLE BOND CCME SUB2 CR:C:CME SUB2 OR I REACTS WITH R PRIME1. GIVING RR PRIME1 C:C:CME SUB2 (III). II AND III WERE DETECTED BY GAS CHROMATOG. ONLY. FACILITY: VSES. NAUCH.-ISSLED. PROEKT. INST. PCLIM. PROD., USSR.

UNCLASSIFIED

Acc. Nr: AP0036618 Abstracting Service: CHEMICAL ABST. 4170 Ref. Code: UR0366

M

78301e Chemistry of dienes and their derivatives. III. Addition of tert-butyl chloride to 2,3-dichloro-1,3-butadiene. Synthesis of 1-alkoxy-2,3-dichloro-5,5-dimethyl-2-hexenes. Mkryan, G. M.; Kazaryan, R. A.; Zakaryan, R. P.; Kaplan-yan, E. E. (Yses. Nauch.-Issled. Proekt. Inst. Polim. Prod., USSR). *Zh. Org. Khim.* 1970, 6(1), 25–6 (Russ). The reaction of $H_2C:CClCCl:CH_2$ with *tert*-BuCl at −20° in the presence of $AlCl_3$ gave good yields of $Me_3CCH_2CCl:CClCH_2Cl$ (I). When $ZnCl_2$ was used as the catalyst the reaction rate was slower and only 22% I was obtained. Oxidn. of I with $KMnO_4$ gave $(CO_2H)_2$ and $Me_3CCH_2CO_2H$. The reaction of I with ROH (R is Me, Et, Pr, Bu, or amyl) in alk. soln. gave 78.6–89.9% $Me_3CCH_2CCl:CClCH_2OR$ and ≤1%, $Me_3CCH:CClCCl:CH_2$.

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ACS

REEL/FRAME
19721472

7

1/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF DIETHYL AND TRIETHYLAMINES ON HYDROGEN COMBUSTION AT LOW PRESSURES. RATE CONSTANTS OF THE H PLUS ET SUB2 NH AND H PLUS ET SUB3 N

AUTHOR-(03)-NALBANDYAN, A.B., MKRYAN, T.G., OGANESYAN, K.T.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(2), 114-18

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--TRIETHYLAMINE, COMBUSTION RATE, ACTIVATION ENERGY, DIETHYLAMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0801 STEP NO--UR/0426/70/023/002/0114/0118

CIRC ACCESSION NO--AP0119708

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119708

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF ET SUB2 NH AND ET SUB3 N ON THE COMBUSTION RATE OF 4:1 H,O WAS STUDIED IN A STATIC APP. AT 580-670DEGREES-SMALLER THAN 9 MM. AT CONCNS. 0-1PERCENT, BOTH AMINES WERE INHIBITORS OF THE PROCESS, BUT ET SUB3 N WAS 1.3 TIMES AS ACTIVE AT ET SUB2 NH. THE ARRHENIUS PARAMETERS OF THE ELEMENTARY REACTIONS H PLUS ET SUB2 NH AND H PLUS ET SUB3 N WERE: ACTIVATION ENERGY 9.2 AND 10.5 KCAL-MOLE, AND PREEXPONENTIAL FACOTR 0.57 TIMES 10 PRIME NEGATIVE10 AND 1.44 TIMES 10 PRIME NEGATIVE10 CM PRIME3-SEC, RESP.

UNCLASSIFIED

USSR

UDC 613.164+617-001.34](049.3)

MLECHIN, B. M., professor, and ANICHIN, V. F., docent (Reviewers)

Shum i Shumovaya Bolezn' (Noise and Noise Disease) by Andreyeva-Galinina, Ye Ts, Alekseyev, S. V., Kadyskin, A. V., and Suvorov, G. A., Leningrad, Izd-vo Meditsina, 1972, 303 pp

Moscow, Vestnik Otorinolaringologii, No 1, Jan/Feb 73, pp 106-108

Abstract: On the basis of literature data and their original research, the authors discuss, in Chapter I, the physical properties and hygienic aspects of various industrial noises as well as methods of measuring the parameters and establishing regulation standards. In Chapter II they present methods of investigating the effects of industrial noise on the human body and describe the necessary equipment. In Chapter III the effects of noise on the individual systems and organs of the human body are discussed. Chapter IV deals with the functional deterioration of the nervous system as a result of exposure to steady and pulsating noise. Chapter V presents the clinical picture of the noise disease with its multiple, diverse syndromes. In the last chapter, the authors make recommendations concerning routine examinations of workers and suggest preventive measures that should be taken in order to reduce noise production and improve sound and vibration proofing. The book has 38 pages of

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USSR

MLECHIN, B. M. and ANICHIN, V. F. (Reviewers), Vestnik Otorinolaringologii, No 1, Jan/Feb 73, pp 106-108

text, many photographs, drawings, graphs, and tables, and a bibliography with 414 references. Although the reviewers object to an overabundance of numerical data and an occasional unconventional anatomical terminology, they recommend the book to otolaryngologists.

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USSR

ZHELEZNYAK, M. B., MNATSAKANYAN, A. KH., YAKUBOV, I. T. (Moscow)

"Relaxation and Nonequilibrium Radiation Behind Shock Waves in Air"

Moscow, Mekhanika Zhidkosti i Gaza, No 4, Jul-Aug 70, pp 161-174

Abstract: The article deals with relaxation behind shock waves in air at velocities of 8-12 km/sec. Profiles of the gas parameters behind the front are obtained. The population densities of radiant states of atoms and molecules are computed. The spectral radiation distributions of the relaxation zone are found. In a number of spectrum intervals the radiation intensity passes through a maximum which is in excess of the equilibrium level. A comparison is made with experimental data obtained in shock tubes. The radiant fluxes of heat from the relaxation zone are computed. Estimates are made of the contribution of this radiation to the radiation heating of blunt bodies in a hypersonic streamline flow. In the first two sections of the article are written the equations of molecular and ionization relaxation, the

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USSR

ZHELEZNYAK, M. B., et al, Mekhanika Zhidkosti i Gaza, No 4, Jul-Aug 70, pp 161-174

velocity values of the basic processes are presented. In the third section are discussed the initial conditions which are determined by the state of the gas before the front. The results of calculation of the kinetics of relaxation are presented in the fourth section. The fifth and sixth sections deal with calculation of the nonequilibrium zone in atomic lines and molecular bands. A comparison is made with experimental data; this is a necessary stage which permits correction of the theoretical results. In the seventh and eighth sections, nonequilibrium radiant fluxes of heat are computed. The contribution of nonequilibrium radiation to aerodynamic heating is compared with equilibrium radiation and convective heating. 1 table, 7 figures, 41 bibliographic entries.

2/2

UDC 535.33

USSR

AVILOVA, I. V., BIBERMAN, L. M., VOROB'YEV, V. S., ZAMALIN, V. M., KOBZEV, G. A., MNATSAKANYAN, A. KH., and NORMAN, G. E., Institute of High Temperatures of the Academy of Sciences USSR

"Optical Properties of Hot Gases. CO_2 + N_2 Mixture"

Moscow, Teplofizika Vysokikh Temperatur, Vol. 8, No. 1, Jan/Feb 70, pp 1-11

Abstract: Elementary radiation processes associated with the presence of carbon atoms, either free or in molecules, in planetary atmospheres are studied. Certain spectral and integral characteristics of CO_2 and N_2 mixtures are calculated and compared. Particular attention is given to the composition 90% CO_2+ + 10% N_2, which approximately corresponds to the atmosphere of Venus according to data from "Venera-4" and "Mariner-5". Computer programs and a computational technique developed earlier by the authors were used to obtain absorption cross sections for processes associated with atomic hydrogen in CO_2 + N_2 mixtures. The absorption cross sections of CN, CO, CO^+, and C_2 are given for the temperatures 4000, 8000, and 12,000°K. The degree of blackness ε, the Rosseland average A, and the Planck average B were calculated for T = (6-10)·10^3°K and P = 0.1-10 at.

USSR

AVILOVA, I. V., et al, Teplofizika, vysokikh temperatur, Vol. 8, No. 1, Jan/Feb 70, pp 1-11

A comparison with experimental data showed that the authors' method of tabulating optical properties of hot gases is applicable to $CO_2 + N_2$ mixtures and produces satisfactory accuracy. From the gas dynamics aspect, the calculations show that radiation transfer plays a considerable role in entry into planetary atmospheres. It is pointed out that the degree of blackness of the mixture studied here is considerably greater than that of air and that the difference is especially great in relatively low temperatures.

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USSR

UDC 533.601.155/.9

KIBERMAN, L. M., MNATSAKANYAN, A. Kh., and YAKUBOV, I. T., Institute of High Temperatures, Academy of Sciences USSR

"Ionization Relaxation Behind Strong Shock Waves in Gases"

Moscow, Uspekhi Fizicheskikh Nauk, No 3, Nov 70, pp 431-462

Abstract: The results of recent research in the field of ionization relaxation is summarized and problems as yet unsolved are pointed out. It is noted that relaxation phenomena behind shock waves have been discussed in surveys and monographs but that problems of ionization relaxation were not given sufficiently complete coverage because the basic results in this field were obtained only in recent years. These successes have resulted in intensive experimental studies at large Mach numbers and progress in the theory of kinetics in a low-temperature plasma. Problems of ionization kinetics in a plasma, initial ionization mechanisms, the structure of the relaxation zone, and radiation of the nonequilibrium zone are discussed in the survey. The table of contents of this survey follows:

1/2

USSR

BIBERMAN, L. M., et al, Uspekhi Fizicheskik Nauk, No 3, Nov 70, pp 431-462

Recombination in an Atomic Plasma Under Collisions With Electrons. 2.2. Effect of Radiation and Interatomic Collisions on Ionization and Recombination Kinetics. 2.3. Electron Energy Balance. 3. Ionization in the First Stage of Relaxation. 3.1. Ionization in Atomic-Molecular Collisions. 3.2 Ionization Caused by Radiation Transfer. 3.3. Effect of Admixtures on Initial Ionization. 4. Structure of Relaxation Zone. 4.1. Profiles of Plasma Parameters in the Relaxation Zone. 4.2. Comparison of Calculated and Measured Values of Relaxation Times in Atomic Gases. 4.3 Ionization Relaxation Behind Strong Shock Waves in Molecular Gases. 4.4. Stronger Shock Waves. 5. Radiation of the Relaxation Zone. 5.1 Distribution of Atoms With Respect to Excited States in a Nonequilibrium Plasma. 5.2. Nonequilibrium Radiation in Spectral Lines and the Continuum. Maximum of Nonequilibrium Radiation. 5.3. Effective Processes in the Relaxation Zone on Aerodynamic Heating in a Hypersonic Flow. It is noted that there is not now any satisfactory theory for the radiation maximum in a nonequilibrium zone and that this is due to the variety and complexity of elementary processes in a molecular plasma. It is also pointed out that studies have shown that the contribution of nonequilibrium radiation to aerodynamic heating can be disregarded, but this result was obtained for motion in the earth's atmosphere and may be different for other planets.

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ROTATIONAL RELAXATION OF DIATOMIC MOLECULES WITH A CALCULATION OF THE INTERACTION OF ELECTRONIC STATES -U-
AUTHOR-(02)-MNATSAKANYAN, A.KH., PODLUBNYY, L.I.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1), 33-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITED STATE, DIATOMIC MOLECULE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0545 STEP NO--UR/0294/70/008/001/0033/0039

CIRC ACCESSION NO--AP0121217
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121217

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETICS OF THE ROTATIONAL RELAXATION OF THE EXCITED ELECTRONIC STATE OF DIAT. MOLS. IS STUDIED. PERTURBATION OF THE ROTATIONAL LEVELS CAUSED BY INTERACTION WITH ELECTRONIC STATES IS TAKEN INTO ACCOUNT. COMPARISON IS MADE WITH THE ROTATIONAL TEMP. OF N SUB2 PRIME POSITIVE MOL. IN THE B PRIME2 SIGMA SUBU PRIME POSITIVE STATE IN THE NONEQUIL. ZONE BEHIND THE SHOCK WAVE FRONT IN N. FACILITY: INST. VYS. TEMP., MOSCOW, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--PHAGE T4R IIB 638 GENETIC TRANSFORMATION WITH PHAGE T4R PRIME POSITIVE DNA. VIII. INACTIVATION IN VITRO AND IN VIVO OF THE CAPACITY OF
AUTHOR-(02)-GOLDFARB, D.M., MNATSAKANYAN, G.G.

COUNTRY OF INFO--USSR

SOURCE--GENETIKA 1970, 6(3), 89-96

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DNA, ESCHERICHIA COLI, MOLECULAR WEIGHT, HEAT SUSCEPTIBILITY, BACILLUS SUBTILIS, PROTEIN SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1138 STEP NO--UR/0473/70/006/003/0089/0096

CIRC ACCESSION NO--AP0130166
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0130166

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INHIBITING ACTIVITY OF HETEROLOGOUS DNA IS MORE RESISTANT TO UV AND MECH. INACTIVATION THAN THE TRANSFORMING ACTIVITY. THE DNA OF E. COLI K-12 (LAMBDA), DEGRADED TO AV. MOL. WT. OF 3 TIMES 10 PRIME5 AND THEN HEAT DENATURED, HAS 50PERCENT OF THE INHIBITING ACTIVITY OF INTACT DNA AND IS THUS ACTIVELY COMPETING WITH THE DNA OF PHAGE T4R PRIME POSITIVE ALTHOUGH ITS MOL. WT. IS 1PERCENT OF THE INTACT DNA. HOWEVER, THIS FRAGMENTATION OF DNA IS ACCOMPANIED BY A DRASTIC DECREASE IN ITS TRANSFORMING ACTIVITY. THESE RESULTS ARE CONFIRMED WITH B. SUBTILIS DNA. WHEN DNA IS ABSORBED ON E. COLI 88 SPHEROPLASTS AND THE MIXT. INCUBATED 60 MIN AT 37DEGREES, THE INHIBITING ACTIVITY OF THE DNA IS NOT AFFECTED. THE TRANSFORMING ACTIVITY OF PHAGE T4R PRIME POSITIVE DNA IS CONSIDERABLY REDUCED UNDER THESE CONDITIONS, POSSIBLY THROUGH DEGRADATION OF THE DNA BY INTRACELLULAR NUCLEASES. INTERFERENCE OF THE PROTEIN SYNTHESIS IN SPHEROPLASTS WITH CHLORAMPHENICOL CONTRIBUTES TO THE PRESERVATION OF THE TRANSFORMING ACTIVITY OF ABSORBED DONOR PHAGE DNA. FACILITY: INST. GEN. GENET., MOSCOW, USSR.

UNCLASSIFIED

USSR UDC: 621.762:669.018.29

MNATSAKANYAN, S. A., ZURNACHAYAN, M. K.

"Investigation of Technological and Physical-Mechanical Properties of Fe-Cr-C-Type Powder Alloys"

Tr. Arm. N.-I. i Proyekt. In-ta Tsvet. Metallurgii [Works of Armenian Scientific Research and Planning Institute for Nonferrous Metallurgy], 1972, No 1(10), pp 189-195 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G416, by S. Krivonosova).

Translation: In order to produce an Fe-Cr-C alloy, type AMG-10 oil was introduced to reduced Fe-Cr powder in a quantity of 1% of the weight of the powder and mixed for 2-2.5 hr in drum mixers. Then, powdered C type GMZh was introduced to the mixture and mixed for 5-6 hours. With a porosity of 20%, σ_b of the alloy reaches 55.2 kg/mm^2, HB 170 kg/mm^2. The powders produced correspond to the requirements of the state standard. A compact material with high mechanical properties (σ_b 87 kg/mm^2, HB 265 kg/mm^2) was produced by extruding the alloy. Microspectral analysis showed that Cr and C are distributed evenly in the alloy. 3 figures, 3 tables, 1 biblio. ref.

1/1

Alkaloids

USSR UDC 547.94

ARUTYUNYAN, L. S., KAYTANDZHYAN, M. A., MNATSAKANYAN, V. A., and MNDZHOYAN, A. L., Institute of Fine Organic Chemistry, Acad. Sc., Armenian SSR

"Modification of Alkaloid Structures. III. Some N-Alkoxybenzyl-(benzoyl)-anabazines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 10, 1970, pp 923-927

Abstract: While studying the structure-activity relationships, a series of N-alkoxybenzoylanabazines (I) and N-alkoxybenzylanabazines (II) were synthesized. To obtain (I), anabazine was dissolved in benzene and a benzene solution of the respective acyl chloride was added to it, followed by a 10% KOH solution and another portion of acyl chloride in benzene. The mixture was refluxed 6 hrs with stirring, cooled and mixed with 2% acetic acid. The benzene layer was separated, washed with 2% acetic acid solution, water, and 5% NaOH, dried and benzene was evaporated to yield (I). To obtain the amines (II), (I) was dissolved in ether and reduced with $LiAlH_4$. Most of the above products are dense oils. Physical properties are tabulated for individual compounds.

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USSR

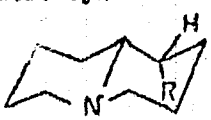
UDC 547.94+547.834.2

MNATSAKANYAN, V. A., ARUTYUNIAN, L. S., ALEKSANYAN, R. A., and MARASHYAN, E. S., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyana, Academy of Sciences SSR (Yerevan)

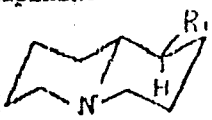
"Modification of Alkaloid Structures. V. Some Alcohols of the Lupinine and Epilupinine Series"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 66-72

Abstract: A series of eight amino alcohols, homologs derived from the (-) lupinine (structure I, R = CH_2OH) and its diastereomer (+) epilupinine (structure II, R_1 = CH_2OH) were synthesized from (-) lupinine.



I



II

The influence of their methiodides on the ring circulation was studied. Both forms were obtained for R = R_1 = $CH_2CH_2CH_2CH$, CH_2O-$(CH_2)_3OH$; only I was obtained for R = $CH_2CH(CH_2OH)_2$; and only II was obtained for R_1 = CH_2CH_2OH. A number of

1/2

USSR

MNATSAKANYAN, V. A., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 66-72

physical constants, such as n_D^{18}, $[\alpha]_D^{17}$, R_f for thin-layer chromatography, IR spectral data and others, are given for the compounds and their methiodides.

USSR

UDC 547.94

HNATSAKANYAN, V. A., ARUTYUNYAN, L. S., and AGABABYAN, E. YU., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Modification of the Structure of Alkaloids. Synthesis of Amino Derivatives of Lupinane and Epilupinane"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 26, No 4, 1973, pp 325-331

Abstract: With the view of continuing a study of the pharmacological properties of derivatives of lupinane and epilupinane, the diastereomeric aminomethyl- and ameinoethylquinolizidines were prepared starting from lupinine and epilupinine. The aminomethylquinolizidines aminolupinane and aminoepilupinane were prepated according to G. R. Clemo et al (J. Chem. Soc., 429, 1931), while the aminoethylquinolizidines homoaminolupinane and homoaminoepilupinane were obtained upon reduction with $LiAlH_4$ of cyanolupinane and cyanoepilupinane, respectively. The aminoalkylquinolizidines were acylated with the chlorides of acetic, homoveratric, and homopiperonic acids thereby converted into the corresponding amides. Reduction of the amides with $LiAlH_4$ resulted in the formation of amines. The physical properties of the

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USSR

MNATSAKANYAN, V. A., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 26, No 4, 1973, pp 325-331

nine amines and nine amides that have been synthesized are listed in tables. Deamination of aminolupinane and aminoepilupinane in benzene with $NaNO_2$ and 50% acetic acid resulted in the formation of (-)lupinine + O-acetyllupinine and (+)epilupinine + O-acetylepilupinine, respectively. No rearrangement took place.

2/2

USSR

UDC 547.944/945

TSULIKYAN, T. A., MUSAYELYAN, L. A., and MNATSAKANYAN, V. A., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"The Alkaloids of Veratrum lobelianum Bernh."

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 10, 1971, pp 928-931

Abstract: The alkaloids of the subterranean parts of Veratrum lobelianum Bernh. were extracted with chloroform on treatment of the dry, powdered plant material with 8% ammonia. The total alkaloid content of the subterranean parts was 1.5% at the end of the period of vegetation (end of Jul - Aug). The mixture of alkaloids was separated by chromatography on Al_2O_3, using $HCCl_3$-MeOH as an eluent. The mixture, which consisted of at least seven bases, contained the known alkaloids nervine and pseudonervine in amounts corresponding to 33 and 17%, respectively, of the total alkaloids In addition to these two principal alkaloids, small amounts of unknown bases with m. 260-2° and m. 286-9° were isolated. The leaves and stalks of the plants contained 0.5% alkaloids in May and only traces of them at the end of the period of vegetation.

1/1

USSR

UDC 577.1:615.7/9

MNDZHOYAN, A. L., GARIBDZHANYAN, B. T., ZAKHARYAN, R. A., and DEMIRCHYAN, L. K., Institute of Fine Organic Chemistry, Academy of Sciences Armenian SSR

"Changes in the Nucleotide Composition of RNA and DNA in Tissues of Tumor-Bearing Rats Upon Chemotherapy With Thio-TEPA"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 24, No 3, Mar 71, pp 3-10

Abstract: The effects of Thio-TEPA, a frequently used antitumor drug, in changing the nucleotide composition of RNA and DNA in rapidly proliferating tissues (the spleen and testes) of normal rats and in these tissues and tumor tissues in rats with S-45 sarcoma were studied. Thio-TEPA on intraperitoneal administration ten times in the maximum tolerated dose reduced the size of the spleen and testes in both normal rats and rats with a tumor. It also reduced the size of the tumor in rats with sarcoma as compared with controls not exposed to the effect of the drug. The nucleotide composition of both RNA and DNA in the spleen and testes was altered by the drug, principally because of alkylation of guanine at N_7, whereas there were no significant changes in the nucleotide composition of RNA in tumor tissue. The action of Thio-TEPA on rapidly proliferating tissue

USSR

MNDZHOYAN, A. L., et al., Biologicheskiy Zhurnal Armenii, Vol 24, No 3, Mar 71, pp 3-10

of the two organs studied consisted of reversion of growth, while its effect on tumor tissue was one of suppression of further growth.

2/2

Pharmacology and Toxicology

USSR

UDC 541.69+547.554

MNDZHOYAN, A. L., (DECEASED), MARKARYAN, E. A., ALEKSANYAN, R. A., KHORENYAN, G. A., HALAYAN, R. S., and ARUSTAMYAN, ZH. S., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Derivatives of Arylalkylamines. II. Constitution and Physiological Activity of Some Substituted Arylalkylamines and Their Derivatives"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 8, 1971, pp 703-713

Abstract: Bu condensing the chlorides of substituted phenylacetic, diphenylpropionic, and diphenylacetic acids with phenyl- and phenoxyisopropylamine, amides I were prepared. Reduction with $LiAlH_4$ converted compounds I into the substituted arylalkylamines II. By cyclizing the amides according to Bishler-Napieralski and then reducing, tetrahydroisoquinoline derivatives III were synthesized. By reacting phenylisopropylamine with indanones and reducing the ketimines that formed, aminoindans IV were obtained. Hydrochlorides of compounds II, III, and IV were effective as coronary dilatants (table). The formulas and properties of compound I and of the hydrochlorides of II and III are listed in tables.

1/1

USSR

UDC 547.835:542.953

MNDZHOYAN, AL., (DECEASED), MARKARYAN, E. A., MARTIROSYAN, T. N., SOLOMINA, L. P., and NARASHYAN, E. S., Institute of Fine Organic Chemistry, Academy of Sciences ArmSSR, Yerevan

"Isoquinoline Derivatives. VI. Synthesis and Pharmacological Properties of 4,6,7-Substituted 1(2)-Arylalkyl-1,2,3,4-tetrahydroisoquinolines and Their Analogues"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 12, Dec 71, pp 1683-1687

Abstract: Condensation of 6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline with diphenylacetic- and diphenylpropionic acyl chlorides gave respective amides -- N-(2-diphenylacetamido)- and N-(2-diphenylpropionylamido)-6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline, m.p. 133-134° and 145-146° respectively. These products were reduced with $LiAlH_4$ to tertiary amines and converted to hydrochlorides: N-(β -diphenylethyl)- and N-(γ -diphenylpropyl)-6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline, melting at 173-174° and 179-180° respectively. When 1-phenyl- or 1-p-methoxyphenylaminomethylcyclohexane was used in above condensation, the products were 1-(acetamidomethyl)-1-phenylcyclohexane and 3,4-dimethyloxyphenylethylamide of diphenylpropionic acid. Cyclization of these amides followed by $LiAlH_4$ reduction yields respective tetrahydroisoquinolines.

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USSR

MNDZHOYAN, A. L., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 12, Dec 71, pp 1683-1687

Condensation of 1-deiphenylethyl-6,7-dimethoxy-1,2,3,4-tetrahydroisoquinoline with formalin gave 2,3-dimethoxy-13-phenyl-5,6,8,13,14,14a-hexahydroisoquinolino-[2,1,-b][2]benzazepine.

2/2

USSR

UDC 541.69+542.91+547.233

MNDZHOYAN, A. L., (DECEASED), MARKARYAN, E. A., BALAYAN, N. S., AVAKYAN, O. M., and TSATINYAN, A. S., Institute of Fine Organic Chemistry imeni A. L. Mndzoyan, Academy of Sciences Armenian SSR, (Yerevan)

"Arylalkylamine Derivatives. III. Synthesis and Pharmacological Properties of N-(3,3-Diarylpropyl)-N-Aryl(diphenyl)alkylamines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vo, 24, No 9, 1971, pp 791-797

Abstract: Condensation of veratrole with methyl ester of cinnamic acid in nitrobenzene and in presence of aluminum chloride gave the methyl ester of 3-(3',4'-dimethoxyphenyl)-3-phenylpropionic acid, which could easily be saponified to the free acid, and finally converted to acyl chloride by treatment with thionyl chloride. Condensation of this acyl chloride with homoveratrylamine, phenylisopropylamine and diphenylaminobutane gave respective amides, for example homoveratrylamide of 3-(3',4'-dimethoxyphenyl)-3-phenylpropionic acid, which could be reduced to the respective secondary amines using $LiAlH_4$ in ether. Tested in an assay on rat's spermiduct these amines showed sympatolytic and some of them even adrenalytic activity.

1/1

USSR

UDC 577.1:615.217

MNDZHOYAN, A. L., (Deceased) and AMADYAN, M. G., Institute of Fine Organic Chemistry, Academy of Sciences Armenian SSR

"The Effect of Etpenal, Cypenam, Pentaphene, and Their Quarternary Analogs on the Cholinesterase Activity of Various Parts of the Rat Brain and Heart"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 23, No 5, May 70, pp 3-11

Abstract: The effect of the cholinolytic properties of several compounds on the cholinesterase (CE) activity in various sections of the rat brain and heart was studied in vivo and in vitro, and the effect of these substances was compared to that of eserine and proserine. The substances were introduced intra-abdominally in the following doses: etpenal and pentaphene, 10 mg/kg each; cypenam, 30 mg/kg; and etpenal and peataphene iodomethylates, in equimolar concentrations at 13 and 39 mg/kg, respectively. An increase in respiration and heart rates was observed after introduction of the drugs. It was established in the series of in vitro experiments that etpenal hydrochloride inhibits CE activity in both brain and heart. The greatest inhibition was observed in the cortical region and in the myocardium of the ventricles. The inhibitary effect was less pronounced in the optic thalamus and hypothalamus. Etpenal iodomethylate had almost the same effect as its tertiary analog. Thus, in spite of the presence of a quaternary

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USSR

MNDZHOYAN, A. L. and AMADYAN, M. G., Biologicheskiy Zhurnal Armenii, Vol 23, No 5, May 70, pp 3-11

N atom in its molecule, this substance depresses CE activity in the brain sections studied. Pentaphene hydrochloride is similar in effect to etpenal hydrochloride and iodomethylate, but its iodomethylate does not affect brain CE activity. It has a stronger effect on CE activity in the myocardium than does pentaphene hydrochloride. Cypenam hydrochloride does not affect brain CE activity, despite its tertiary N, but it does reduce CE activity in the myocardium more strongly than the pentaphene or etpenal hydrochlorides. Cypenam iodomethylate does not affect brain CE activity. In the series of in vitro experiments, etpenal hydrochloride and iodomethylate had an effect only at high concentrations ($1 \cdot 10^{-4}$ and $1 \cdot 10^{-5}$, respectively). Pentaphene hydrochloride and iodomethylate depress CE activity only in the myocardium and at lower concentrations. In both the in vivo and in vitro tests, cypenam hydrochloride and iodomethylate affected CE activity only in the myocardium of the ventricles. All compounds containing a quaternary N atom depressed the CE activity of the myocardium in both test series to a greater extent than compounds containing tertiary nitrogen. Of the compounds with a quaternary N atom, only proserine and etpanal iodomethylate depressed CE activity of brain tissue, a fact which indicates that these two compounds can permeate the blood-brain barrier.

2/2

Alkaloids

USSR UDC 547.94

ARUTYUNYAN, L. S., KAYTANDZHYAN, M. A., MNATSAKANYAN, V. A., and MNDZHOYAN, A. L., Institute of Fine Organic Chemistry, Acad. Sc., Armenian SSR

"Modification of Alkaloid Structures. III. Some N-Alkoxybenzyl-(benzoyl)-anabazines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 23, No 10, 1970, pp 923-927

Abstract: While studying the structure-activity relationships, a series of N-alkoxybenzoylanabazines (I) and N-alkoxybenzylanabazines (II) were synthesized. To obtain (I), anabazine was dissolved in benzene and a benzene solution of the respective acyl chloride was added to it, followed by a 10% KOH solution and another portion of acyl chloride in benzene. The mixture was refluxed 6 hrs with stirring, cooled and mixed with 2% acetic acid. The benzene layer was separated, washed with 2% acetic acid solution, water, and 5% NaOH, dried and benzene was evaporated to yield (I). To obtain the amines (II), (I) was dissolved in ether and reduced with $LiAlH_4$. Most of the above products are dense oils. Physical properties are tabulated for individual compounds.

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1/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EFFECT OF ESERINE AND PROSERINE ON CHOLINESTERASE ACTIVITY IN VARIOUS SECTIONS OF RAT BRAIN AND HEART -U-

AUTHOR-(04)-MNDZHOYAN, A.L., AMADYAN, M.G., SHIRINYAN, E.A., TSOVYANOVA, S.T.

COUNTRY OF INFO--USSR

SOURCE--BIOL. ZH. ARM. 1970, 23(1), 3-9

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ALKALOID, CHOLINESTERASE, BRAIN, CEREBRAL CORTEX, HEART, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0036 STEP NO--UR/0427/70/023/001/0003/0009

CIRC ACCESSION NO--AP0137235

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0137235
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ESERINE AND PROSERINE (0.05 MG-KG I.P.) LOWERED THE CHOLINESTERASE ACTIVITY MORE IN THE CEREBRAL CORTEX THAN IN THE OTHER PARTS OF BRAIN. PROSERINE, IN CONTRAST TO ESERINE, WAS MORE EFFECTIVE ON HEART CHOLINESTERASE THAN ON BRAIN CHOLINESTERASE.
FACILITY: INST. TONKOI ORG. KHIM., EREVAN, USSR.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--SEMISYNTHETIC PENICILLINS. III. METHOXY AND DIALKOXYPHENYLBENZYLPENICILLINS -U-

AUTHOR-(05)-MNDZHOYAN, A.L., TSINKER, M.G., MKRTCHYAN, E.S., TERZAKHARYAN, YU.Z., OGANYAN, SH.G.

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(3), 5-10

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PENICILLIN, BENZENE DERIVATIVE, CHLORIDE, BACTERICIDE, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1357 STEP NO--UR/0450/70/004/003/0005/0010

CIRC ACCESSION NO--AP0125005

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125005

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MONO AND DISUBSTITUTED BENZOYL CHLORIDES (0.02 MOLE) WERE TREATED WITH 0.02 MOLE 6,AMINOPENICILLANIC ACID (I) TO YIELD 10 II (R PRIME1 EQUALS H OR O, M, OR P-OME; R PRIME2 EQUALS H, OR P-ALKOXY; N EQUALS 0). CONDENSATION OF I WITH MONO AND DISUBSTITUTED PHENACYL CHLORIDES GAVE 9 II (R PRIME1 EQUALS O, M, OR P-MEO; R PRIME2 EQUALS H OR P-ALKOXY; N EQUALS 1). AN ANTIBACTERIAL ACTIVITY SPECTRUM OF II IS GIVEN. FACILITY: INST. TONK. ORG. KHIM., EREVAN, USSR.

UNCLASSIFIED

USSR

UDC 541.69+543.422.8

MNDZHOYAN, A. L. (Deceased), AVOYAN, R. L., AVETISYAN, A. A., and ARUTYUNYAN, E. G., Institute of Fine Organic Chemistry Imeni A. L. Mndzhoyan, Acad. Sc. Armenian SSR (Yerevan)

"Conformation and Physiological Activity of Molecules. II. X-ray Structural Analysis of Diteline"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 8, 1972, pp 710-717

Abstract: Final results of the x-ray structural analysis of diteline are reported. The compound -- the dimethiodide of dimethylaminoethyl ester of succinic acid -- is used in medicine as a muscle relaxant. Three dimensional x-ray diffraction analysis showed the parameters of the elementary cell to be: a = 12.79; b = 8.29; c = 9.73 Å; β = 96.8°; N = 2; and the coordination number = $P2_1$. The number of independent reflections was 630. The structure was determined by the heavy atom method and correlated by Fourier analysis and by the method of least squares up to R = 0.135. The molecule has the shape of a horseshoe. The N^+CCO fragments are gauche. The $N^+ \ldots N^+$ interatomic distance has been determined to be 7.75 Å.

1/1

UDC 542.91+547.233+547.572

USSR

GEVORGYAN, G. A., PETROSYAN, L. M., and MNDZHOYAN, O. L., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Derivatives of Aminoketones. VIII. alpha-(p-Alkoxyphenyl)-gamma-diethylamino- and alpha-(p-Alkoxyphenyl)-gamma-(N-pentamethyleneimino)butyrophenones"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 10, 1971, pp 892-899

Abstract: By the interaction of p-alkoxybenzyl cyanides with diethylaminoand pentamethyleneiminoethyl chlorides in the presence of NaH_2N, the corresponding 2-(p-alkoxyphenyl)-4-diethylamino- and 2-(p-alkoxyphenyl)-4-pentamethyleneiminobutyronitriles were obtained, which by the reaction with phenylmagnesium bromide were converted into alpha-(p-alkoxyphenyl)-gamma-diethylamino- and alpha-(p-alkoxyphenyl)-gamma-(N-pentamethyleneeimino)butyrophenones. In the reaction of the p-alkoxybenzyl cyanides with the aminoethyl chlorides, the disubstituted compounds $RC_6H_4C(CN)(CH_2CH_2R')_2$ also formed to a minor extent. The oximes of the aminoketones were prepared. gamma-Aminoketones are known to have an increased analgesic activity as compared with betaaminoketones. The compounds synthesized and their physical properties are listed in tables.

1/1

UDC 577:1:615.216.5

USSR

AMADYAN, M. G., MNDZHOYAN, O. L., and OVSEPYAN, M. V., Institute of Fine Organic Chemistry, Academy of Sciences Armenian SSR

"The Influence of Ditiline, Hexatoline and Subecholine on Cholinesterase Activity in Different Parts of the Rat Brain and Heart"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 23, No 6, Jun 70, pp 105-106

Abstract: In experiments with 130 white rats, the authors introduced the myorelaxants intraperitoneally in doses evoking curareiform effects: ditiline--2.5 mg/kg, hexatoline--0.5 mg/kg, and subecholine--20 mg/kg. The animals were sacrificed after 5, 15, 30, and 60 minutes. Examination of the heart and brain showed no influence of the above drugs on cholinesterase actively. However, these drugs, given in extremely large doses, show inhibiting effects on cholinesterase in the optic thalamus and in the myocardium of ventricles.

1/1

(12)

UDC 541.69+542.91+547.631.4

USSR

GAMBURYAN, A. A., BABIYAN, N. A., MOROZOVA, N. M., AKOPYAN, N. YE., CHAUSHYAN, K. M., and MNDZHOYAN, L. O., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences Armenian SSR, Yerevan

"Studies in the Field of Aminoethers. V. Dialkylaminoalkyl Ethers of Benzhydrol and o-, m-, and p-Benzydrols - their Synthesis and Neuropharmacological Activity"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 10, 1971, pp 900-908

Abstract: By the rearrangement of quaternary salts formed by aminoalcohols with benzhydryl chlorides, the aminoethers RC_6H_4-CH(Ph)-OC_nH_{2n}-NR'_2 were prepared, where R = H or o-, m-, p-Me; R' = Me, Et; C_nH_{2n} = $(CH_2)_2$, $(CH_2)_3$, $(CH_2)_4$, $CH(Me)CH_2CH_2$, $CH(Me)CH(Me)$, $CH_2C(Me)_2CH_2$. Physiological tests carried out with the aminoethers upon their conversion to hydrochlorides showed that transition from beta-dialkylaminoethyl ethers to propyl ethers increased the antispasmodic activity. This activity again decreased on transition to dialkylaminobutyl ethers. Some of the compounds that has been prepared exhibited an antihistaminic activity in tests on the isolated intestine of guinea pigs.

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USSR

(3)

GAMBURYAN, A. A., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 10, 1971, pp 900-908

The compounds synthesized together with their physical properties and the melting points of hydrochlorides or iodomethylates are listed in tables.

2/2

UNCLASSIFIED PROCESSING DATE--27NOV70

1/2 034

TITLE--HYDROELASTICITY OF SHELLS -U-

AUTHOR-(02)-MNEV, YE.N., PERTSEV, A.K.

COUNTRY OF INFO--USSR

SOURCE--HYDROELASTICITY OF SHELLS (GIDROUPRUGOST' OBOLOCHEK) LENINGRAD, SUDOSTROYENIYE, 1970, 365 PP

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--STRUCTURAL ENGINEERING, SHOCK WAVE, SHIPBUILDING ENGINEERING, SHELL STRUCTURE STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1717 STEP NO--UR/0000/70/000/000/0001/0365

CIRC ACCESSION NO--AM0130578

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 034

CIRC ACCESSION NO--AM0130578

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: FROM THE SCIENTIFIC EDITOR 3. FROM AUTHORS 5. INTRODUCTION 7. CHAPTER I. FREE VIBRATIONS OF SHELLS CONTACTIGN WITH A LIQUID 14. II. DYNAMIC REACTION OF AN AXISYMMETRICAL CYLINDIRCAL SYSTEM TO APERIODIC LOAD 76. III. INTERACTION OF A SHOCK WAVE WITH SHELLS OF SPHERICAL AND CYLINDRICAL SHAPES 141. IV. MORE COMPLEX LINEAR PROBLEMS OF HYDROELASTICITY OF SHELLS 219. V. STABILITY OF SHELLS CONTACTING WITH A LIQUID UNDER DYNAMIC LOAD 280. BIBLIOGRAPHY 359. THE BOOK DEALS WITH PROBLEMS CONNECTED WITH CALCULATION OF INTERACTIONS OF SHELLS WITH A LIQUID; FREE AND FORCED VIBRATIONS OF SHELL LIQUID SYSTEMS; DIFFRACTION PROCESSES; STABILITY OF SHELLS CONTACTING WITH A LIQUID; INTERACTION UNDER DYNAMIC LAOD. THE BOOK WAS WRITTEN FOR ENGINEERS, SCIENTISTS, PROFESSORS AND STUDENTS WORKING ON DYNAMIC STRENGTH OF SHIP STRUCTURES. IT CAN BE USEFUL ALSO TO SPECIALISTS OF OTHER ENGINEERS FIELDS INTERESTED IN THE BEHAVIOR OF SHELL LIQUID SYSTEMS IN DYNAMICS.

UNCLASSIFIED

USSR

UDC 621.791.1:621.574

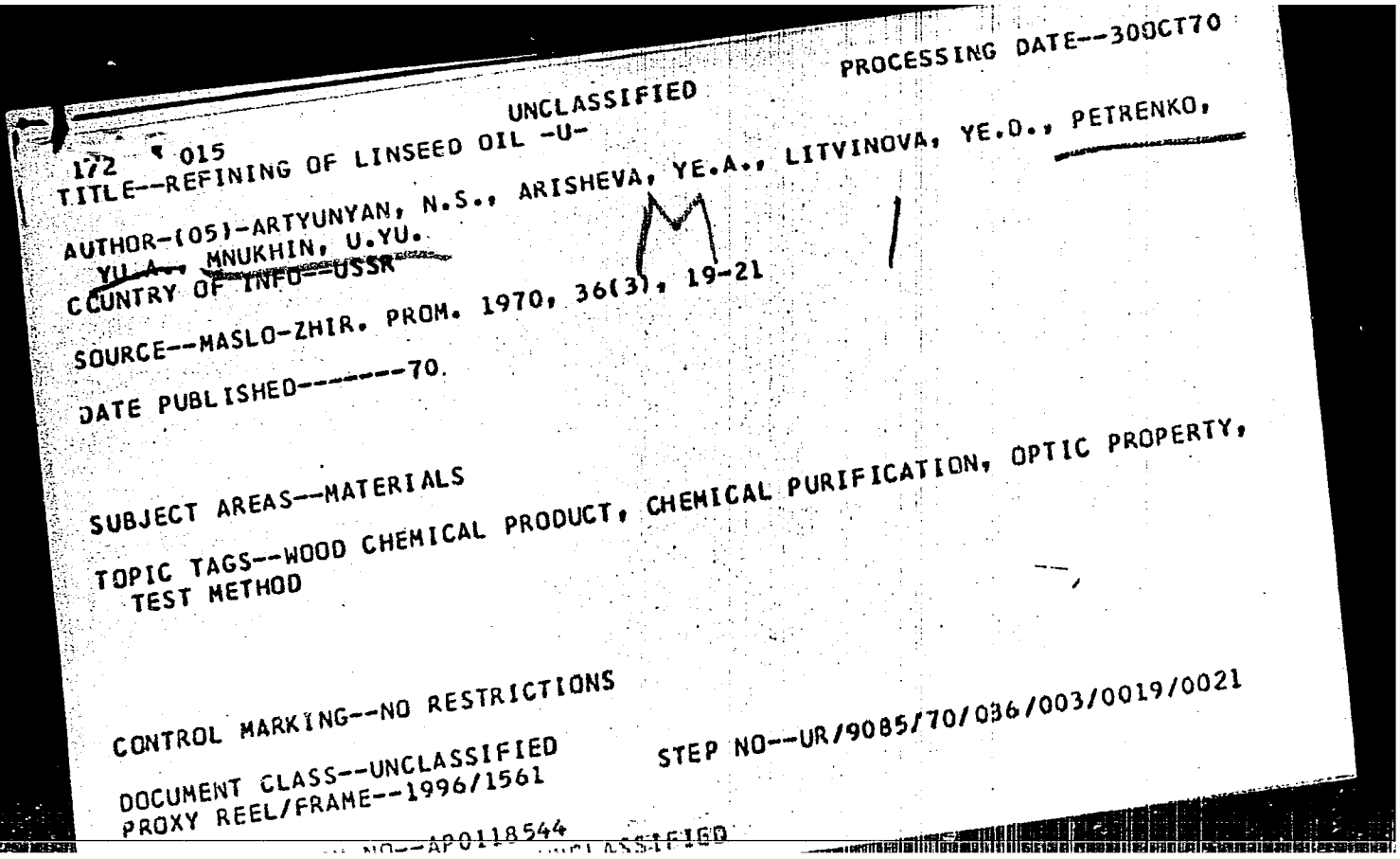
KHRENOV, K. K., BALAKIN, V. I., MNISHENKO, I. A., and SERGEYEVA, YU. A., Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR; BERSUDSKIY, S. YU., and CHERNYAK, G. I., Minsk Plant of Refrigeration Units

"Cold Welding of Copper and Aluminum Tubing"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 70, pp 49-50

Abstract: A new welding technology is described for aluminum and copper tubing. For aligning the mechanical properties of both aluminum and copper tubing, the latter was annealed at 600 to 800° C for 20-30 minutes up to the point of removing the work hardening. A microstructural examination of the joints performed by cold welding failed to reveal any flaws. Copper appears to preserve its coarse-grained structure (acquired after annealing) almost up to the very line of the copper-aluminum interface. The grains were slightly stretched in the direction of the metal flow. Specimens of pipes welded by the new method were mounted in two refrigeration units and subjected to laboratory tests for prolonged vibration and transportability. The continuous action of vibration damaged the condensers but failed to affect the strength of the welded joints.

1/1



172 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--REFINING OF LINSEED OIL -U-

AUTHOR-(05)-ARTYUNYAN, N.S., ARISHEVA, YE.A., LITVINOVA, YE.D., PETRENKO, YU.A., MNUKHIN, U.YU.

COUNTRY OF INFO--USSR

SOURCE--MASLO-ZHIR. PROM. 1970, 36(3), 19-21

DATE PUBLISHED--------70.

SUBJECT AREAS--MATERIALS

TOPIC TAGS--WOOD CHEMICAL PRODUCT, CHEMICAL PURIFICATION, OPTIC PROPERTY, TEST METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED STEP NO--UR/9085/70/036/003/0019/0021

PROXY REEL/FRAME--1996/1561

NO--AP0118544 UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 015
CIRC ACCESSION NO--AP0118544
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REFINING OF LINSEED OIL, CONSISTING OF TREATING WITH ACIDS, NEUTRALIZATION WITH NAOH (80 G-L.), AND TREATING WITH ACTIVATED BLEACHING CLAY WAS EXPTL. INVESTIGATED WITH SPECIAL EMPHASIS ON ACID TREATMENT. A COMPARISON WAS MADE BETWEEN REFINING INCLUDING TREATMENT WITH ACIDS, AND REFINING WITHOUT ACIDS. PRELIMINARY TREATMENT OF 3 LINSEED OIL TYPES (PREPD. FROM FLAX FOR SPINNING, FROM FLAX FOR OIL PREPN., AND FROM A FLAX MIXT.) WITH 0.2PERCENT (BASED ON THE AMT. OF OIL) 85PERCENT H SUB3 PO SUB4 OR 93PERCENT H SUB2 SO SUB4 OR WITH THEIR OIL. SOLNS. PROVIDES BETTER ELIMINATION OF PHOSPHATIDES AND AN IMPROVEMENT IN OIL APPEARANCE (LOWER COLOR) AND ITS THERMAL TESTING COMPARED WITH AN UNTREATED OIL SAMPLE.
FACILITY: KRASNODAR. POLITEKH. INST., KRASNODAR, USSR.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--MECHANISM OF THE INHIBITING ACTION OF CHLORPROMAZINE ON THE LOCKING FUNCTION OF THE CORTEX -U-

AUTHOR-(02)-MNUKHINA, R.S., SAMOYLOVA, L.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(1), 253-6

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHLORPROMAZINE, CEREBRAL CORTEX, NEURON, BIOPOTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0707 STEP NO--UR/0020/70/191/001/0253/0256

CIRC ACCESSION NO--AT0121366

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--30OCT70

2/2 020

CIRC ACCESSION NO--AT0121366

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHLORPROMAZINE (5-6 MG-KG, I.M.) GIVEN TO RABBITS INCREASED THE DISCHARGES OF THE CORTICAL MOTOR NEURONS FROM 7 TO 12 IMPULSES PER SEC AND GRADUALLY DECREASED THE NEG. PHASE. AFTER 15-20 MIN, ONLY THE POS. PHASE REMAINED, AND THE DISCHARGE RHYTHM DROPPED TO A VERY LOW LEVEL. AT THIS TIME, A CONDITIONED BLINKING REFLEX DISAPPEARED. THIS INDICATES THAT CHLORPROMAZINE BLOCKS THE DENDRITES, WHICH ARE INVOLVED IN THE LOCKING FUNCTION OF THE CORTEX.

FACILITY: FIZIOL. INST. IM. UKHTOMSKOGO, LENINGRAD GOS. UNIV. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 612.633.81+612.822.3

MNUKHINA, R. S., and SAMOILOVA, L. A.

"The Mechanism of the Inhibiting Influence of Aminazin on the Locking Function of the Brain"

Moscow, Doklady Akademii Nauk SSSR, Bol 191, No 1, 1970, pp 253-256

Abstract: The graphs derived from experiments on rabbits with a micromanipulator implanted in the motor area of the brain are described and changes in the conditioned and unconditioned responses with and without aminazin are discussed. Within 15-20 minutes of introduction of aminazin, retardation of rhythm in a previously developed reflex occurs accompanied by prolongation of reaction time, and reductions of potentials. Aminazin blocks the adrenergic components of the reticular formation, lessening excitability and the responsiveness of the reflex activity. Locking of the time element is located at the dendrites. Aminazin acts on the dendrites, influencing the inhibitors of neural functions.

1/1

USSR UDC: 621.791.011:669.15-194

MNUSHKIN, O. S., POTAPOV, B. V., LEVIN, A. Ye., Leningrad Polytechnic Institute imeni M. I. Kalinin

"Influence of Preliminary High-Temperature Deformation on Welded Joints in Austenitic Steel"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 73, pp 10-12.

Abstract: The influence of high-temperature deformation of austenitic steel on the tendency of the near-seam zone to intercrystalline rupture is studied. The results indicate that high temperature deformation during welding, accompanied by slipping between grains, might intensify intergrain slippage during subsequent tests and thereby decrease the deformation capability of the welded joint.

UDC 539.21:536.42

USSR

PETROPAVLOV, N. N. and MIYUKH, Yu. V.

"Investigating the β-δ Polymorphic Transition Process in Hexachlorophene"

V sb. Kristallizatsiya i faz. prevrashcheniya (Crystallization and Phase Transformations--collection of works) Minsk, "Nauka i tekhn." 1971, pp 46-53 (from RZh-Fizika, No. 9, 1971, Abstract No. 9E358)

Translation: The investigation of low-temperature polymorphic transitions in C_2Cl_6 and the observation and cinematic filming of the phase interfaces at the optical resolution limit have led to the establishment of a layer growth mechanism for crystals of the daughter phase. A series of secondary phenomena is discovered: rhythmic splitting, the movement of twinning boundaries under the action of the phase interfaces, and the formation of spherical cavities measuring less than one micron. Author's abstract

1/1

USSR UDC: 581.14:502.282.22

SHERSHUKOVA, O. P., and MOCHALKIN, A. I., All Union Scientific Research Institute of Phytopathology, Bol'shiye Vyazemy

"Ultrastructure of Uredospores of Puccinia graminis f. sp. tritici in Relation to Their Biological State"

Leningrad, Mikologiya i Fitopatologiya, Vol 4, No 6, 1970, pp 505-508

Abstract: The ultrastructure of uredospores of Puccinia graminis f. sp. tritici was investigated. It was established that the ultrastructure of uredospores in anabiosis differed from that of uredospores which had been activated by keeping them in a chamber containing humid air. In uredospores in the state of anabiosis, the nucleus had an oval shape, the contents of the nucleus were homogeneous and lacked structure, only a few mitochondria were present, and there was no endoplasmic neticulum. In uredospores that had been activated, the nuclei became elongated, a large number of mitochondria appeared, and an endoplasmic neticulum as well as other cytoplasmic structures developed. The mitochondria and cytoplasmic structures including the endoplasmic neticulum apparently formed from fragments that separated from the nuclear membrane, which was brought into an active state.

1/1

1/2 022 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--CHANGE IN THE TYPE OF PHOTOINDUCED PLANT LUMINESCENCES AS A RESULT OF HERBICIDAL ACTION. SECOND COMMUNICATION. CHARACTERISTICS OF THE
AUTHOR-(05)-MOCHALKINA, K.I., KOMAN, L.L., GOLOVAN, A.M., MOCHALKIN, A.I., ALEKSEYEV, S.I.
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KHIMIYA V SEL'SKOM KHOZYAYSTVE, VOL 8, NR 4 (78), APR 70, PP 53-60
DATE PUBLISHED----APR70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HERBICIDE, ALKYL RADICAL, BENZENE DERIVATIVE, UREA DERIVATIVE, PHOTOCHEMISTRY, PLANT PHYSIOLOGY, LUMINESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605014/C09 STEP NO--UR/0394/70/008/004/0058/0060

CIRC ACCESSION NO--AP0140479
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--11DEC70

IRC ACCESSION NO--AP0140479

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHLOROPHYL MOLECULES EXCITED BY LIGHT QUANTA CAN TRANSFORM THE CAPTURED ENERGY EITHER CHEMICALLY, OR BY MEANS OF PHOTOREEMISSION. PRESENTLY HERBICIDES OF THE PHENYLDIALKYLUREA GROUP ARE USED WIDELY TO CONTROL WEEDS AND THEY SPECIFICALLY EFFECT FLUORESCENCE AND PHOTOPHOSPHORESCENCE. STUDYING THE MECHANISM OF THEIR ACTION, THE AUTHORS UTILIZED A PHOSPHORESCENCEGRAPH, DESCRIBED EARLIER. IT WAS DETERMINED THAT UREA DERIVATIVES AFFECT BOTH THE CHARACTERISTICS AND INTENSITY OF PHOTOREEMISION OF TREATED PLANT LEAVES, REGARDLESS WHETHER THE AGENT WAS SPRAYED OVER THE LEAVES OR INTRODUCED INTO THE ROOM SYSTEM. THIS CHANGE IN THE INTENSITY OF THE PHOTOREEMISION INDICATED THE TIME WHEN A TOXIC AGENT ENTERED THE PLANT PORTION ABOVE THE GROUND AND BY THE SAME TOKEN GAVE DATA ON THE MIGRATION OF THE AGENTS IN SOIL. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF PHYTOPATHOLOGY, MOSCOW, MINISTRY OF AGRICULTURE USSR. FACILITY: INSTITUTE OF BIOCHEMISTRY AND PHYSIOLOGY OF MICROORGANISMS, PUSHCHINO, ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CHANGE IN THE NATURE OF THE PHOTOINDUCED LUMINESCENCE OF PLANTS UNDER THE INFLUENCE OF HERBICIDES. 2. EFFECT OF ARYLDIALKYLUREA

AUTHOR-(05)-MOCHALKINA, K.I., ROMAN, L.L., GOLOVAN, A.M., MOCHALKIN, A.I., ALEKSEYEV, S.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(4), 298-300

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ARYL RADICAL, ALKYL RADICAL, UREA, HERBICIDE, PLANT PHYSIOLOGY, PHOTOCHEMISTRY, FLUORESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0025 STEP NO--UR/0394/70/008/004/0298/0300

CIRC ACCESSION NO--AP0137224

UNCLASSIFIED

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202110011-1"

UNCLASSIFIED PROCESSING DATE--04DEC70

2/2 023
CIRC ACCESSION NO--AP0137224
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIURON, MONURON, AND PHENURON (IN 70PERCENT ETOH) AT CONCN. OF 0.1, 0.01, AND 0.001PERCENT WERE APPLIED TO THE LEAVES OF KIDNEY BEAN PLANTS AT THE FIRST BREAKING OF THE BUD, AND TO THE ROOTS OF GERMINATED SEEDS, GROWN ON PERFORATED PLATES. A MARKED DISTURBANCE OF PHOTOREMISSION OF THE LEAVES OF THE PLANTS WAS NOTED LESS THAN 1 DAY AFTER TREATMENT. THE GREATEST ACTIVITY WAS SHOWN BY DIURON. SOY PLANTS GROWN IN A GREEN HOUSE WERE SPRAYED WITH AQ. ACETONE SOLNS. OF LINURON AND MONURON AT DOSES 0.3 AND 1.0 KG-HA, RESP., PLOTS OF SOY WERE TREATED WITH THE SAME HERBICIDES 3 DAYS AFTER SOWING. PHOTOREMISSION OF THE LEAVES OF THE PLANTS WAS CHANGED, MONURON BEING THE MORE ACTIVE. INDEPENDENT OF HERBICIDES APPLICATION TO EITHER THE LEAVES OR THE ROOT SYSTEM, THERE WAS A CHANGE IN THE NATURE AND INTENSITY OF PHOTOREMISSION OF THE LEAVES. THE TIME OF MIGRATION OF THE HERBICIDE FROM THE ROOT SYSTEM TO THE ABOVE GROUND FOLIAGE COULD BE DETD. BY THE CHANGE OF PHOTOREMISSION OF THE LEAVES. AND THE TIME OF MIGRATION OF THE HERBICIDES IN THE SOIL. FACILITY: INST. BIOKHIM. FIZIOL. MIKROORG., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ANOMALOUS REACTION OF ARYLTHIOETHANOLS WITH PHORPHORUS TRICHLORIDE -U-

AUTHOR-(05)-KHOKHLOV, P.S., KALUTSKIY, L.A., NAZAROV, T.A., MOCHALKIN, A.I., BLIZNYUK, N.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(4), 795-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ETHANOL, PHOSPHORUS CHLORIDE, ORGANIC SULFUR COMPOUND, ARYL RADICAL, ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1502 STEP NO--UR/0079/70/040/004/0795/0797

CIRC ACCESSION NO--AP0135163

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0135163
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADDING 0.01 MOLE PCL SUB3 TO 0.03 MOLE PHSCH SUB2 CH SUB2 OH AND 0.05 MOLE ETHYLENE OXIDE IN MEPH AT 0-5DEGREES, HOLDING AT 10-15DEGREES UNTIL REACTIVE CL HAD BEEN CONSUMED, AND EVACUATING THE MIXT. SEVERAL HR AT 100DEGREES GAVE AFTER ADDN. OF 0.01 MOLE H SUB2 O AND HEATING TO 100DEGREES, A LITTLE PHSCH SUB2 CH SUB2 OH, B SUB2 110-17DEGREES, AND 80.9PERCENT (PHSCH SUB2) SUB2, M. 61-2DEGREES. SIMILARLY WERE PREPD. THE ANALOGS WITH ARYL GROUPS SHOWN: P-MEOC SUB6 H SUB4 (I) M. 102-3DEGREES; O,CLC SUB6 H SUB4, M. 75-6DEGREES; AND P,CLC SUB6 H SUB4, M. 87-8DEGREES. IF PCL SUB3 IS REPLACED BY PHCH SUB2 PCL SUB2 THE 1ST REACTIONGAVE THE SAME PRODUCT BUT IN 61PERCENT YIELD; REPLACING ETHYLENE OXIDE BY ET SUB3 N GAVE A 68PERCENT YIELD OF THE SAME PRODUCT; IF HCL ACCEPTOR IS OMITTED, THE REACTION WITH PCL SUB3 GIVES MAINLY CLCH SUB2 CH SUB2 SPH. HEATING 3 MOLES PHSCH SUB2 CH SUB2 OH WITH 1 MOLE (ET SUB2 N) SUB3 P AT 120-30DEGREES WITH DISTN. OF ET SUB2 NH GAVE AFTER FINIAL TREATMENT WITH 1 MOLE H SUB2 O AT 90-100DEGREES 2 HR, 77PERCENT (PHSCH SUB2) SUB2. HEATING 0.06 MOLE PHSCH SUB2 CH SUB2 OH WITH 0.03 MOLE H SUB3 PO SUB3 AND A TRACE H SUB2 SO SUB4 IN XYLENE 3 HR WITH SEPN. OF H SUB2 O GAVE 68PERCENT (PHSCH SUB2) SUB2. REACTION OF P,MEOC SUB6 H SUB4 SK WITH (BRCH SUB2) SUB2 IN ETOH GAVE 83PERCENT I; ANALOGS WERE PREPD. SIMILARLY FOR STRUCTURE PROFF. FACILITY: VSES. NAUCH.-ISSLED. INST. FITOPATOL., USSR.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11DEC70

1/2 022

TITLE--CHANGE IN THE TYPE OF PHOTOINDUCED PLANT LUMINESCENCES AS A RESULT OF HERBICIDAL ACTION. SECOND COMMUNICATION. CHARACTERISTICS OF THE

AUTHOR-(05)-MOCHALKINA, N.I., ROMAN, L.L., GOLOVAN, A.M., MOCHALKIN, A.I., ALEKSEYEV, S.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KHIMIYA V SEL'SKOM KHOZYAYSTVE, VOL 8, NR 4 (78), APR 70, PP 53-60

DATE PUBLISHED----APR70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HERBICIDE, ALKYL RADICAL, BENZENE DERIVATIVE, UREA DERIVATIVE, PHOTOCHEMISTRY, PLANT PHYSIOLOGY, LUMINESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605014/C09 STEP NO--UR/0394/70/008/004/0058/0060

CIRC ACCESSION NO--AP0140479

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11DEC70

2/2 022
CIRC ACCESSION NO--AP0140479
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CHLOROPHYL MOLECULES EXCITED BY LIGHT QUANTA CAN TRANSFORM THE CAPTURED ENERGY EITHER CHEMICALLY, OR BY MEANS OF PHOTOREEMISSION. PRESENTLY HERBICIDES OF THE PHENYLDIALKYLUREA GROUP ARE USED WIDELY TO CONTROL WEEDS AND THEY SPECIFICALLY EFFECT FLUORESCENCE AND PHOTOPHOSPHORESCENCE. STUDYING THE MECHANISM OF THEIR ACTION, THE AUTHORS UTILIZED A PHOSPHORESCENCEGRAPH, DESCRIBED EARLIER. IT WAS DETERMINED THAT UREA DERIVATIVES AFFECT BOTH THE CHARACTERISTICS AND INTENSITY OF PHOTOREEMISION OF TREATED PLANT LEAVES, REGARDLESS WHETHER THE AGENT WAS SPRAYED OVER THE LEAVES OR INTRODUCED INTO THE ROOM SYSTEM. THIS CHANGE IN THE INTENSITY OF THE PHOTOREEMISION INDICATED THE TIME WHEN A TOXIC AGENT ENTERED THE PLANT PORTION ABOVE THE GROUND AND BY THE SAME TOKEN GAVE DATA ON THE MIGRATION OF THE AGENTS IN SOIL. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF PHYTOPATHOLOGY, MOSCOW, MINISTRY OF AGRICULTURE USSR. FACILITY: INSTITUTE OF BIOCHEMISTRY AND PHYSIOLOGY OF MICROORGANISMS, PUSHCHINO, ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

USSR

UDC: 632.954 + 661.717.5

MOCHALKINA, K. I., ROMAN, L. L., GOLOVAN', A. M., MOCHALKIN, A. I., ALEKSEYEV, S. I., All Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR; and SOKOLOV, M. S., Institute of Biochemistry and Physiology of Microorganisms, Pushchino, Academy of Sciences USSR

"Change in the Type of Photoinduced Plant Luminescences as a Result of Herbicidal Action. Second Communication. Characteristics of the Action of Aryldialkylurea Type of Herbicides on Photoreemission"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 4 (78), Apr 70, pp 58-60

Abstract: Chlorophyl molecules excited by light quanta can transform the captured energy either chemically, or by means of photoreemission. Presently herbicides of the phenyldialkylurea group are used widely to control weeds and they specifically effect fluorescence and photophosphorescence. Studying the mechanism of their action, the authors utilized a phosphorescencegraph, described earlier. It was determined that urea derivatives affect both the characteristics and intensity of photoreemission of treated

USSR

MOCHALKINA, K. I., et al, Khimiya v Sel'skom Khozyaystve, Vol 8, No 4 (78), Apr 70, pp 58-60

plant leaves, regardless whether the agent was sprayed over the leaves or introduced into the root system. This change in the intensity of the photoreemission indicated the time when a toxic agent entered the plant portion above the ground and by the same token gave data on the migration of the agents in soil.

USSR

UDC 621.375.82

KURBATOV, L. N., BRITOV, A. D., DIROCHKA, A. I., KOZLOVA, G. S., MOCHALKIN, N. N., AVER'YANOV, I. S., STARIK, P. M.

"Stimulated Radiation of Solid Solutions of Tin and Lead Chalcogenides in the 10-Micron Band"

V sb. Kvant. elektronika (Quantum Electronics--collection of works), No 3, Moscow, Soviet Radio, 1972, pp 97-99 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D982)

Translation: A study was made of recombination radiation in the presence of electron excitation, and induced emission was obtained in $Pb_{1-x}Sn_xSe$ crystals grown by the Bridgman method with $x = 0.04$, 0.05, and 0.07 and in $Pb_{1-x}Sn_xTe$ crystals grown from the gas phase with $x = 0.17$ and 0.18. The radiation wavelength at 90° K is within the 8-11-micron band. The pulse power is 1-10 milliwatts. A study was made of the temperature functions. The maximum operating temperature does not exceed 140° K. The bibliography has 5 entries.

1/1

Acc. Nr. AP0048458 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code 4R 0449

105549a Temperature dependences of lead sulfide radiation. Kurbatov, L. N.; Britov, A. D.; Mochalkin, N. N. (USSR). *Fiz. Tekh. Poluprov.* 1970, 4(1), 120–4 (Russ). The temp. dependences of the spectral and integral characteristics of the radiation of PbS were investigated at 10–160°K. The energy gap depends nonlinearly on the temp. The level appearing after activation "follows" the zone. The energy is 4 × 10^{-4} eV. A correlation was established between the spectral distribution of the radiation and absorption and the appearance of the photoelec. effect.

Alexandre Fucs

1/1

REEL/FRAME
19800166

18 Nt

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ELECTRONIC ABSORPTION SPECTRUM OF CONJUGATED SYSTEMS WITH WEAKLY BOUND FRAGMENTS -U-

AUTHOR--MOCHALKIN, V.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., FIZ. 1970, 13(3), 41-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON SPECTRUM, CONJUGATE BOND SYSTEM, BUTADIENE, ETHYLENE, ELECTRON TRIPLET STATE, WAVE FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0180 STEP NO--UR/0139/70/013/003/0041/0045

CIRC ACCESSION NO--AT0132457

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0132457

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW METHOD FOR CALCG. TRANSITION ENERGIES E AND OSCILLATOR STRENGTH F OF COMPLICATED SYSTEMS, BASED ON E AND F OF SIMPLE FRAGMENTS, WAS TESTED BY USING BUTADIENE (I) MOL., DIVIDED INTO 2 ETHYLENE FRAGMENTS. FOR CALCNS. OF I, POLYELECTRON WAVE FUNCTIONS WERE USED BASED ON THE LINEAR COMBINATION OF ONE ELECTRON MO'S IN ZERO APPROXN. FOR I THE CALCD. VALUE OF THE ENERGY OF THE LOWEST TRIPLET STATE LEVEL IS 3.14 EV, OF THE SINGLET STATE 5.84 EV; F EQUALS 0.54. THIS IS IN GOOD AGREEMENT WITH EXPTL. VALUES. FACILITY: NOVGOROD. GOSPEDINST., NOVGOROD, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--CHANGE IN THE TYPE OF PHOTOINDUCED PLANT LUMINESCENCES AS A RESULT OF HERBICIDAL ACTION. SECOND COMMUNICATION. CHARACTERISTICS OF THE

AUTHOR-(05)-MOCHALKINA, K.I., ROMAN, L.L., GOLOVAN, A.M., MOCHALKIN, A.I., ALEKSEYEV, S.I.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KHIMIYA V SEL'SKOM KHOZYAYSTVE, VOL 8, NR 4 (78), APR 70, PP 58-60

DATE PUBLISHED-----APR70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HERBICIDE, ALKYL RADICAL, BENZENE DERIVATIVE, UREA DERIVATIVE, PHOTOCHEMISTRY, PLANT PHYSIOLOGY, LUMINESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO-----FD70/605014/C09 STEP NO--UR/0394/70/008/004/0058/0060

CIRC ACCESSION NO--AP0140479

UNCLASSIFIED

CIRC ACCESSION NO--AP0140479

ABSTRACT/EXTRACT--(U) GP-0- LIGHT QUANTA CAN TRANSFORM MEANS OF PHOTOREEMISSION. GROUP ARE USED WIDELY TO CONTROL FLUORESCENCE AND PHOTOPHOSPHORESCENCE. ACTION, THE AUTHORS UTILIZED A IT WAS DETERMINED THAT UREA AND INTENSITY OF PHOTOREEMISION WHETHER THE AGENT WAS SPRAYED ROOM SYSTEM. THIS CHANGE IN INDICATED THE TIME WHEN A THE GROUND AND BY THE SAME AGENTS IN SOIL. FACILITY: INSTITUTE OF PHYTOPATHOLOGY, MOSCOW, FACILITY: INSTITUTE OF BIOCHEMISTRY PUSHCHINO, ACADEMY OF SCIENCES USSR.

ABSTRACT. CHLOROPHYL MOLECULES EXCITED BY THE CAPTURED ENERGY EITHER CHEMICALLY, OR BY PRESENTLY HERBICIDES OF THE PHENYLDIALKYLUREA AND THEY SPECIFICALLY EFFECT STUDYING THE MECHANISM OF THEIR A PHOSPHORESCENCEGRAPH, DESCRIBED EARLIER. DERIVATIVES AFFECT BOTH THE CHARACTERISTICS OF TREATED PLANT LEAVES, REGARDLESS OVER THE LEAVES OR INTRODUCED INTO THE THE INTENSITY OF THE PHOTOREEMISION TOXIC AGENT ENTERED THE PLANT PORTION ABOVE GAVE DATA ON THE MIGRATION OF THE ALL UNION SCIENTIFIC RESEARCH MINISTRY OF AGRICULTURE USSR. OF MICROORGANISMS, ACADEMY OF SCIENCES USSR.

1/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CHANGE IN THE NATURE OF THE PHOTOINDUCED LUMINESCENCE OF PLANTS UNDER THE INFLUENCE OF HERBICIDES. 2. EFFECT OF ARYLDIALKYLUREA

AUTHOR-(05)-MOCHALKINA, K.I., ROMAN, L.L., GOLOVAN, A.N., MOCHALKIN, A.I., ALEKSEYEV, S.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. SEL. KHOZ. 1970, 8(4), 298-300

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ARYL RADICAL, ALKYL RADICAL, UREA, HERBICIDE, PLANT PHYSIOLOGY, PHOTOCHEMISTRY, FLUORESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0025 STEP NO--UR/0394/70/008/004/0298/0300

CIRC ACCESSION NO--AP0137224

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137224

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIURON, MONURON, AND PHENURON (IN 70PERCENT ETOH) AT CONCN. OF 0.1, 0.01, AND 0.001PERCENT WERE APPLIED TO THE LEAVES OF KIDNEY BEAN PLANTS AT THE FIRST BREAKING OF THE BUD, AND TO THE ROOTS OF GERMINATED SEEDS, GROWN ON PERFORATED PLATES. A MARKED DISTURBANCE OF PHOTOREMISSION OF THE LEAVES OF THE PLANTS WAS NOTED LESS THAN 1 DAY AFTER TREATMENT. THE GREATEST ACTIVITY WAS SHOWN BY DIURON. SOY PLANTS GROWN IN A GREEN HOUSE WERE SPRAYED WITH AQ. ACETONE SOLNS. OF LINURON AND MONURON AT DOSES 0.3 AND 1.0 KG-HA, RESP., PLOTS OF SOY WERE TREATED WITH THE SAME HERBICIDES 3 DAYS AFTER SOWING. PHOTOREMISSION OF THE LEAVES OF THE PLANTS WAS CHANGED, MONURON BEING THE MORE ACTIVE. INDEPENDENT OF HERBICIDES APPLICATION TO EITHER THE LEAVES OR THE ROOT SYSTEM, THERE WAS A CHANGE IN THE NATURE AND INTENSITY OF PHOTOREMISSION OF THE LEAVES. THE TIME OF MIGRATION OF THE HERBICIDE FROM THE ROOT SYSTEM TO THE ABOVE GROUND FOLIAGE COULD BE DETD. BY THE CHANGE OF PHOTOREMISSION OF THE LEAVES, AND THE TIME OF MIGRATION OF THE HERBICIDES IN THE SOIL. FACILITY: INST. BIOKHIM. FIZIOL. MIKROORG., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 632.954 + 661.717.5

MOCHALKINA, K. I., ROMAN, L. L., GOLOVAN', A. M., MOCHALKIN, A. I., ALEKSEYEV, S. I., All Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR; and SOKOLOV, M. S., Institute of Biochemistry and Physiology of Microorganisms, Pushchino, Academy of Sciences USSR

"Change in the Type of Photoinduced Plant Luminescences as a Result of Herbicidal Action. Second Communication. Characteristics of the Action of Aryldialkylurea Type of Herbicides on Photoreemission"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 4 (78), Apr 70, pp 58-60

Abstract: Chlorophyl molecules excited by light quanta can transform the captured energy either chemically, or by means of photoreemission. Presently herbicides of the phenyldialkylurea group are used widely to control weeds and they specifically effect fluorescence and photophosphorescence. Studying the mechanism of their action, the authors utilized a phosphorescencegraph, described earlier. It was determined that urea derivatives affect both the characteristics and intensity of photoreemission of treated

USSR

MOCHALKINA, K. I., et al, Khimiya v Sel'skom Khozyaystve, Vol 8, No 4 (78), Apr 70, pp 58-60

plant leaves, regardless whether the agent was sprayed over the leaves or introduced into the root system. This change in the intensity of the photoreemission indicated the time when a toxic agent entered the plant portion above the ground and by the same token gave data on the migration of the agents in soil.

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202110011-1"

USSR

UDC: 681.327.66

BEREZIN, A. S., VAGANOV, V. I., KUZ'MIN, V. A., MOCHALKINA, O. R., ONISHCHENKO, Ye. M., ORLIKOVSKIY, A. A., PERSHENKOV, V. S., Moscow "Order of the Red Banner of Labor" Engineering Physics Institute

"An Integrated Thyristor Memory Element"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 20, Jul 72, Author's Certificate No 343299, Division G, filed 7 Oct 70, published 22 Jun 72, p 174

Translation: This Author's Certificate introduces an integrated thyristor memory element which contains a thyristor with longitudinal structure, and a recording readout transistor connected by its collector to the P-base of the thyristor, and by its base through a resistor to the word recording input. As a distinguishing feature of the patent, the degree of integration is increased, and the interference immunity and recording and readout speed are increased by connecting the readout transistor emitter to the thyristor emitter, and also through a resistor to the word readout input, and by connecting the base of the readout transistor to the zero-potential line.

1/1

USSR UDC 621.396.6-181.5

BELOVA, G. F., GOROKHOV, V. N., KUZ'MIN, V. A., MOCHALKINA, O. R.

"Hybrid Neuristor Lines Based on PNPN Structures"

Kiev, IVUZ Radioelektronika, Vol 14, No 11, Nov 71, pp 1312-1318

Abstract: The paper presents the results of development and investigation of two kinds of neuristor lines based on planary PNPN structures: with coupling between elements over two common base regions, and over a single base. The principal electrical characteristics are measured as a function of the structure, the values of the passive elements and the mode of operation of the neuristors. It is found that the rate of propagation of a pulse in the neuristor line depends on the amplitude of the pulse and the external capacitance, and is independent of the load impedance. Pulse velocity in lines with two common bases is $2\text{-}5 \cdot 10^4$ m/s, while the corresponding speeds for lines with a single base are 800-1200 m/s. The rate of propagation in lines with a single common base is practically independent of the spacing between elements. When the diameter of the emitter in the N^+ region is doubled, the pulse velocity increases by a

APPROVED FOR RELEASE: 07/20/2001 CIA-RDP86-00513R002202110011-1"

USSR

BELOVA, G. F. et al., IVUZ Radioelektronika, Vol 14, No 11, Nov 71, pp 1312-1318

factor of 1.4 in lines of both types. The refractor period for lines of both types is the same -- 3 μs for a load impedance of 10 kΩ and zero capacitance. The refractor length is equal to 6 cm for a line with two common bases, and 0.2 cm for a line with a single common base. Pulse amplitude is determined by supply voltage and load impedance. The maximum possible pulse amplitude for elements separated by 110 μ is 3 V. The proposed neuristors can be comparatively easily made in integrated form as they can operate without external capacitances at load impedances of 10-20 kΩ. Six figures, bibliography of four titles.

2/2

USSR

UDC 621.382.333.34

KUZ'MIN, V.A., MOCHALKINA, O.R., PERSHENKOV, V.S.

"Maximum Speed Of Response Of Low-Power Thyristors"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Issue 24, Moscow, "Sov. radio," 1970, pp 86-98 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4B284)

Translation: A computation is made of the maximum speed of response of a device with a given turn-on voltage for a one-dimensional model of a p^+-n-p-n^+ structure. It is shown that the total switching time has a minimum value at some value of the lifetime in a n-type base. The principal relations which are necessary for computation of high-speed thyristors of average power are found. 6 ill. 6 ref.

1/1

USSR

UDC 666.1:542.65:539.23:543.422.8

(2)

DYMCHENKO, N. P., SHISHLYANNIKOVA, L. M., YERMAKOV, N. I., URAZALIYEV, U. S., ZAUMYSLOV, YU. V., and MOCHALOV, A. I., Moscow State Pedagogical Institute imeni V.I. Lenin and Moscow Oblast Pedagogical Institute imeni N. K. Krupskaya

"X-Ray Diffractometric Study of Grade St-50-1 Sital Substrate Phase Composition"

Moscow, Neorganicheskiye Materialy, Vol 9, No 10, Oct 73, pp 1791-1793

Abstract: Three batches of grade ST-50-1 sital substrates from industrial production were investigated as to reproducibility of phase composition from point to point on one substrate for each of the three batches, then on reproducibility of phase composition from substrate to substrate in the first, second, and third batches, respectively. Sital ST-50-1 is an oxide composition containing (in %): 60 SiO_3, 13 Al_2O_3, 9.5 MgO, 7.5 CaO, and 9.0 TiO_2. Careful analysis of the x-ray diffractograms revealed that, in addition to an amorphous phase, the ST-50-1 sital substrate has two other phases: TiO_2 in the form of rutie and $MgSiO_3$ (clinoenstatite). Reproducibility from substrate to substrate in a batch and from batch to batch was good. Three-hour heat treatments at 200, 400, and 600°C had no effect on sital substrate composition. One figure, one table, three bibliographic references.

1/1

USSR

UDC 534.232.082.73.001.5

DEMIDOV, V.P., MARTYNOV, V.P., MIKHALOV, B.F., SMIRNOV, A.A.

"Electric Impedance Of A Film Piezo Converter"

Radiotekhnika i elektronika, Vol XVII, No 3, Mar 1972, pp 648-652

Abstract: The impedance of experimental specimens of piezo converters based on CdS is studied by direct methods in the 200-800 MHz range, in order to determine the coefficient of electromechanical coupling, K, of the film. Measurements conducted in pulse and continuous regimes are described. The authors are grateful to N.I. Fokin and B.L. Bobikov for assistance in the work. 2 fig. 7 ref. Received by editors, 22 Oct 1970.

1/1

ELECTRONICS

Microelectronics

UDC: 534.232.082.73-8

USSR

BRITSYN, K. I., DEMIDOV, V. P., MARTYNOV, V. P., MOCHALOV, B. E., SMIRNOV, A. A., and IVANOV, L. A.

"Studying Thin-Film CdS-Piezo-Converters"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No 9, 1970, pp 1937-1944

Abstract: The authors present the results of the study of CdS-piezo-converter test specimens vaporized onto Al_2O_3. Basic converter characteristics are calculated and it is shown that the frequency characteristic depends as much on the relationships between the electrical impedances of a converter and the measuring tract as it does on the relationships between the mechanical impedances of cadmium sulfide and the material of an acoustic line. A shift in the least loss point is predicted for CdS on Al_2O_3 with respect to mechanical resonance frequency. This shift makes it possible to vary the band width and the position of the least loss point completely by electrical methods. A simple equivalent converter circuit proposed by the authors makes it readily possible to estimate its harmonization with the measuring tract and to determine the aspect of the frequency characteristic for various methods of excitation. The experimental converter specimens yielded a loss in the order of 30 db for a double conversion with a band of approximately 35 percent. The minimal loss point shifts toward the lower frequency region in comparison with the acoustic resonance point. The experimental and theoretical data are in good agreement. The loss values presented are not minimal and can be reduced more using

USSR

BRITSYN, K. I. et al., Radiotekhnika i Elektronika, Vol. 15, No 9, 1970, pp 1937-1944

supplementary matching equipment. The original article has six figures, 12 formulas, and nine bibliographic entries.

2/2

UDC 548.522

USSR

PAVLOV, V. S., MOCHALOV, M. M., and VORONTSOV, YE. S., Voronezh Polytechnic Institute

"Growing of Fe_3O_4 and CoO Crystals in a d-c Electric Arc"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 3, 1973, pp 49-52

Abstract: Single crystals of Fe_3O_4 and CoO were grown in a hermetic chamber with controllable atmosphere by substance transfer from the cathode to the anode of the d-c electric arc. The grown crystals were up to 80 mm long and up to 10 mm in diameter. The temperature and the spectrum of the arc, effects of growing conditions and of the electrode spacing on the substance transfer, and also the behavior of the zero electrode were investigated. Phase analysis indicates that in case of Fe_3O_4 sublimation, single crystals of nonstoichiometric Fe_3O_4 spinel develop on the anode, but a crystal of cubic structure grows, when using CoO in the capacity of electrodes. The mechanism of substance transfer is discussed by taking into account thermodynamic factors and the directed motion of charged particles, including electrons. The process of sublimation and condensation of substance in an electric arc can be transformed into a peculiar drawing of the crystal from the gaseous medium through the liquid phase. In this case, the high temperature and control of the growing rate and atmospheric pressure can be considered as con-

USSR

PAVLOV, V. S., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 3, 1973, pp 49-52

tributory factors for obtaining a single crystal substance. Three figures, three formulas, four bibliographic references.

2/2

MOCHALOV, S. V.

lunar geology

PROBLEMS OF LUNAR GEOLOGY

Edited by A. V. Peyve

Translation of "Problemy Geologii Luny."
"Nauka" Press, Moscow, 1969

NASA TT F-689

(13)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION JANUARY 1972

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(5)

SOME FEATURES OF THE SMALL CRATERS OF THE MOON

A. L. Sukhanov

ABSTRACT. Craterlets, which are craters on the order of a few kilometers, are considered to be of single-impact origin, and therefore have features which are distinctly different from those of large craters on the moon. Research by American and Russian scientists on the topic is discussed.

UNEVEN DISTRIBUTION OF ANNULAR STRUCTURES ON THE MOON ON THE BASIS OF THEIR DIAMETER

K. V. Florenskiy, Ye. L. Zabelin, S. V. Mochalov and Yu. G. Pimenov

ABSTRACT. The irregular size frequency-distribution of ring structures on the Moon is discussed. A history of the problem of the distribution of the number of craters as a function of their diameter is given. Data obtained from the Luna-9 and Ranger-7 spacecrafts are described.

USSR

UDC: 621.373.826:628

BOGDANOV, V. V., BRYKOV, V. G., MATROSOV, V. I., MOCHALOV, A. V., MYNBAYEV, D. K., SAYDOV, P. I., SHCHERBAKOV, Yu. A.

"Fundamental Problems in Developing a Laser Gyroscope"

Izv. Leningr. elektrotekhn. in-ta (News of Leningrad Electrical Engineering Institute), 1972, vyp. 101, pp 69-74 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D499 [résumé])

Translation: The principal physical relations which define the working characteristic of a gyroscope are examined. Technical requirements are formulated for the elements and parts of a laser gyroscope as implied by these physical relations. The results of an investigation of the zone of capture of the instrument are presented as well as one of the methods of reducing the threshold sensitivity -- Zeeman effect. Bibliography of 3 titles.

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1/2 042 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--BLOWING THROUGH PORES AND SUCTION IN THE PRESENCE OF FREE CONVECTION AT A HORIZONTAL PERMEABLE SURFACE -U-

AUTHOR-(03)-BRDLIK, P.M., MOCHALOV, V.A., SUGAK, V.G.

COUNTRY OF INFO--USSR

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2/2 042

CIRC ACCESSION NO--AP0124914

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF A MACH ZEHNDER INTERFEROMETER TO A STUDY OF THE FORMATION OF A THERMAL BOUNDARY LAYER AND THE HEAT TRANSFER AT A HORIZONTAL HEATED SURFACE IN THE PRESENCE OF FREE CONVECTION. THE EXISTENCE OF A CENTRAL AND AN OUTER REGION, EACH OF WHICH HAS ITS OWN HEAT TRANSFER LAW IS DEMONSTRATED, AND FORMULAS FOR CALCULATING THE HEAT TRANSFER IN EACH REGION WITH ALLOWANCE FOR BLOWING OR SUCTION ARE PROPOSED IN WHICH BLOWING AND SUCTION PARAMETERS FOR EACH OF THE REGIONS ARE INTRODUCED. IT IS SHOWN THAT THE EFFECT OF BLOWING OR SUCTION ON THE HEAT TRANSFER COEFFICIENT IS SMALLER FOR HEATING OF UPPER SURFACE THAN OF THE LOWER SURFACE, DUE TO TURBULENCE ASSOCIATED WITH THE FORMATION OF A CELLULAR FLOW STRUCTURE. FACILITY: NAUCHNO-ISSLEDOVATEL'SKII INSTITUT STROITEL'NOI FIZIKI, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 681.325.3

ZHUCHKOV, A. G., MOCHALOV, V. D.

"Magnetic Integrating Code-to-Analog Converters"

Moscow, Magnit. elementy avtomatiki i vychisl. tekhn. XIV Vses. soveshch., 1972. Ref. dokl. (Magnetic Elements in Automation and Computer Technology. Fourteenth All-Union Conference, 1972. Abstracts of Papers), 1972, pp 187-189 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 73, abstract No 1B461 by B. K.)

Translation: The authors examine schemes of using magnetic cores with rectangular hysteresis loop as magnetic integrating code-to-analog converters. The operating principle of the proposed devices is based on the irreversible change of magnetic fluxes in transformer cores under the effect of voltages applied to record windings over a certain time period in accordance with definite code digits. The analog equivalent of the converted code is the time interval required to reverse magnetization of the cores under the effect of a standard voltage.

The converter consists of a line of series-connected, two-winding transformers, each corresponding to a certain code digit. The primary winding

1/2

USSR

ZHUCHKOV, A. G., MOCHALOV, V. D., Magnit. elementy avtomatiki i vychisl. tekhn. XIV Vses. soveshch., 1972. Ref. dokl., 1972, pp 187-189

of each transformer is connected to a voltage source whose magnitude corresponds to the weight of the given digit, and all secondary windings are connected in series into the standard voltage circuit. Equations are presented which describe the operation of the converter. The authors discuss questions of designing the proposed converters and methods of regulating and monitoring them.